DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-018787
Date Inspected: 01-Dec-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
Location: Shanghai, China

CWI Name:	See Below		**CWI Present:**	☑ Yes	☐ No
Inspected CWI report:	☐ Yes	☑ No ☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No ☐ N/A
Electrode to specification:	☑ Yes	☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No ☐ N/A
Qualified Welders:	☑ Yes	☐ No ☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No ☐ N/A
Approved Drawings:	☑ Yes	☐ No ☐ N/A	**Approved WPS:**	☑ Yes	☐ No ☐ N/A
			Delayed / Cancelled:	☐ Yes	☑ No ☐ N/A

Bridge No: 34-0006
Component: OBG

Summary of Items Observed:
CWI Inspector: Mr. Bao Qian

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

OBG Bay 13

This QA Inspector observed ZPMC welder Mr. Hu Feng Jian, stencil 067877 used flux cored welding procedure WPS-345-FCAW-3G(3F)-ESAB-Repair to make weld repairs to OBG segment 13AE grillage weld SA7038-051. ABF CWI Mr. Bao Qian presented this QA Inspector with weld repair document B-WR-17832 that documents the repair of this weld. Mr. Bao Qian informed this QA Inspector that the depth of the weld repair gouge prior to welding was 38mm. This QA Inspector measured a welding current of approximately 260 amps and 24.0 volts. This QA Inspector observed Mr. Hu Feng Jian appeared to be certified to make this weld and the base materials were heated with electric heaters to preheat and maintain the base material temperature of this weld joint. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Niu Yuehai, stencil 066443 used flux cored welding procedure WPS-345-FCAW-3G(3F)-ESAB-Repair to make weld repairs to OBG segment 13AE grillage weld SA7038-051. ABF CWI Mr. Bao Qian presented this QA Inspector with weld repair document B-WR-17834 that documents the

repair of this weld. Mr. Bao Qian informed this QA Inspector that the depth of the weld repair gouge prior to welding was 35mm. This QA Inspector measured a welding current of approximately 240 amps and 22.8 volts. This QA Inspector observed that the minimum welding voltage in the WPS is 23.9 volts and that Mr. Hu Feng Jian has a welding voltage that was approximately 1.0 volt below this minimum limit. This QA Inspector showed ABF CWI Mr. Bao Qian of the welding voltage meter and he agreed the welding voltage was below the minimum and he adjusted the welding voltage to approximately 26 volts. This QA Inspector observed Mr. Niu Yuehai appeared to be certified to make this weld and the base materials were heated with electric heaters to preheat the base material temperature of this weld joint. Following adjustment of the welding voltage, items observed on this date appeared to generally comply with applicable contract documents. See the photograph below for additional information.

OBG Bay 14

This QA Inspector observed ZPMC welder Mr. Wang Li, stencil 044772 used shielded metal arc welding procedure specification WPS-345-SMAW-2G(2F)-Repair to make repairs of OBG segment 13CE vertical plate stiffener weld VP3008-001-020 in accordance with weld repair document B-WR-17990. This weld had been ultrasonically rejected. This QA Inspector observed ZPMC has recorded a welding current of approximately180 amps. This QA Inspector asked ZPMC QC Inspector Mr. Zhong Hai what was the depth of the weld repair prior to welding and Mr. Zhong Hai could not locate any grind depth being written on the weld repair document and he measured the depth of the partially welded gouge to have a depth of 8mm. This QA Inspector observed the base materials had been heated with electric heaters to preheat the base material temperature of this weld joint. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Ms. Wang Min, stencil 044771 used submerged arc welding procedure specification WPS-B-T-2221-B-L2C-S-2 to make OBG segment 14E weld SEG3019*-006. This weld joins deck plate DP3167A to deck plate DP3761A. This QA Inspector observed ZPMC QC has recorded a welding current of 630 amps, 32.5 volts and Ms. Wang Min appeared to be certified to make this weld. This QA Inspector observed the base materials were preheated with electric heaters prior to welding. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zheng Mingye stencil 066695 used flux cored welding procedure specification WPS-B-T-2133-ESAB to make OBG segment 14E Anchor Plate welds AP3031-884 and 332. This QA Inspector observed a welding current of approximately 250 amps, 22.0 volts and the base materials were preheated with an electric heater. This QA Inspector observed that the minimum welding voltage in the WPS is 23. 9 volts and that Mr. Hu Feng Jian has a welding voltage that was approximately 2.0 volts below this minimum limit. This QA Inspector showed ABF CWI Mr. Bao Qian the welding voltage meter and he agreed the welding voltage was below the minimum and he adjusted the welding voltage to approximately 27 volts. Following adjustment of the welding voltage, items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Tang Xinjian stencil 066041 used flux cored welding procedure specification WPS-B-T-2133-ESAB to make OBG segment 14E Anchor Plate weld AP3031-716 and 332. This QA Inspector observed a welding current of approximately 240 amps, 25.0 volts and the base materials were preheated with an electric heater. Items observed on this date appeared to generally comply with applicable

contract documents.

This QA Inspector observed ZPMC welder Mr. Dan Deyin, stencil 044795 used flux cored welding procedure specification WPS-B-T-2233-ESAB to make OBG segment 13AE weld SEG3007J-036. This QA Inspector observed a welding current of approximately 260 amps, 29.0 volts and Mr. Dan Deyin appeared to be certified to make this weld. This QA Inspector observed that the maximum welding voltage in the WPS is 27.5 volts and that Mr. Dan Deyin has a welding voltage that was approximately 1.0 volt above this maximum limit. This QA Inspector showed ABF CWI Mr. Bao Qian and QC Inspector Mr. Zhong Hai the welding voltage meter and they agreed the welding voltage was above the maximum limit and Mr. Zhong Hai adjusted the welding voltage to approximately 25 volts. Following adjustment of the welding voltage, items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Wang Quanlin stencil 066746 used flux cored welding procedure specification WPS-B-T-2231-ESAB to make OBG segment 13AE weld SEG3007T-214. This QA Inspector observed a welding current of approximately 342 amps, 33.0 volts and Mr. Wang Quanlin appeared to be certified to make this weld. This QA Inspector observed that the WPS lists a maximum welding current of 320 amps and maximum of 26.6 volts and that Mr. Wang Quanlin has high welding current and voltage. This QA Inspector showed ABF CWI Mr. Bao Qian and QC Inspector Mr. Zhong Hai the welding meter and they agreed the welding current and voltage were both above the maximum limits. QC Inspector Mr. Zhong Hai adjusted the welding machine controls to have a current to approximately 300 amps and the 25 volts. Following adjustment of the welding machine, items observed on this date appeared to generally comply with applicable contract documents. See the photograph below for additional information.

This QA Inspector observed ZPMC welder Mr. Ye Bing stencil 066733 used flux cored welding procedure specification WPS-B-T-2232-TC-U5-F to make OBG segment 13AE weld SEG3007L-045. This QA Inspector observed a welding current of approximately 300 amps, 26.0 volts, the base materials were preheated with an electric heater and Mr. Ye Bing appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zhu Zezhou stencil 067888 prepared to use flux cored welding procedure WPS-B-T-2233-ESAB to make weld SEG3007Y-324. This QA Inspector observed ABF CWI Mr. Bao Qian measured a welding current of approximately 360 amps, 25 volts, and the base materials were being preheated with an electric heater prior to welding. This QA Inspector observed ZPMC has an electric heater on the portion of the weld that is to be welded and white paint has been spilled on portions of the weld joint. This QA showed ABF CWI Mr. Bao Qian that the weld joint that was being heated did not have clean surfaces and after the area was wire brushed Mr. Bao Qian informed ZPMC welder Mr. Zhu Zezhou that this area needs to be ground prior to welding. Mr. Bao Qian informed this QA Inspector that there are no grinders available at this time and ZPMC will not perform any welding of this joint this shift. Items observed on this date appeared to generally comply with applicable contract documents.

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

Summary of Conversations:

See Above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact James Devey +8615000026784, who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer